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August 3, 2009

Sandy Collins, R.N.
Director of Health Care Services
23 Depot Street
Westford, Massachusetts 01886

Dear Ms. Collins:

The purpose of this letter is to respond to comments included in a July 14, 2009 letter from Mr. Douglas Deschenes, attorney for the proponent, Newport Materials LLC. Mr. Deschenes's letter was in response to a June 26, 2009 letter from DPH/BEH letter to you, as well as information contained in a letter to you on June 15, 2009, which provided technical assistance regarding the proposed facility. We appreciate this opportunity to clarify the issues we raised in our previous letters to you.

The DPH/BEH July 26th letter identified specific public health-related areas that we believe should be included in the Scope of Services for the town's consultant. These areas involve: (1) assessing potential impacts from source operations requires the consideration of all sources of emissions (i.e., stationary, mobile, fugitive); (2) sensitive populations need to identified and potential impacts need to be considered; (3) emission estimates quantified in the permit application require further review; and (4) noise impacts need to be further considered. In our letter, we also recommended that an analysis for mitigating emissions be conducted. As you know, the primary concern regarding the proposed facility relates to emissions from plant operations that may adversely impact residents in the vicinity of the site including an elementary school located within a mile of the site where the rate of pediatric asthma is statistically significantly higher than the statewide rate.

Mr. Deschenes response to DPH/BEH comments number 1, 2, and 3 above noted that: (1) emissions from the facility were modeled using approved methods and procedures and the predicted concentrations were below ambient air quality standards established by US EPA and MA DEP; (2) fugitive emissions were estimated for the rock crushing operations, silo load out, asphalt storage, silo filling and asphalt-loaded trucks; (3) modeling predictions at the Rita E. Miller School were less than 1% of the ambient air quality standards and less than 15% of other regulatory levels (i.e., significant impact levels or threshold effects exposures limits); (4) an explanation was provided for use of alternative emission factors for formaldehyde; (5) the applicant proposed BACT controls, best management practices for dust suppression; and in the

absence of any regulatory mandate the use of electricity to power rock crushing process (vs. diesel powered generator), and retrofit of exhaust filters on trucks and other mobile equipment in the yard.

Since the July 14th BOH meeting we spoke with representatives of the MassDEP Northeast Regional Office[1] and confirmed that (1) MassDEP is in the process of reviewing the permit application and is aware of concerns raised in a letter from Air Quality Associates (attached) regarding several issues including the emission factor used for formaldehyde, modeling analysis, and BACT analysis; and (2) the Massachusetts operating permit program does not require the applicant to consider mobile fugitive emissions associated with material handling, plant traffic or engine emissions from plant operations. Thus, the air quality modeling conducted for permit application (summarized in the Air Quality Modeling of the Proposed Newport Materials Asphalt Plant prepared by TRC Companies, Inc., April 2009) required that the air dispersion modeling analysis only consider Unit 1 stack (HMA Drum Mix Plant) and Unit 2 stack (Hot Oil Heater) using either natural gas or ultra low diesel fuel.

Chapter 111 of the General Laws of Massachusetts provides the mandate for BOH to ensure public health protection for atmospheric pollution, noisome and injurious odors and nuisance odors (see Attachment 1 for Chapter 111: Section 31C, Chapter 111: Section 143, Chapter 111: Section 122). Under this authority, issues relative to public health impacts that are separate and apart from the state permitting process may be considered by the local BOH in order to assess the potential environmental health consequences of a proposed facility that emits air pollutants. For example, although MA operating permit program presently does not require inclusion of all emission sources as part of their minor source permit application, there are well-established public health assessment protocols that require the consideration of all emission sources associated with the operation of a proposed facility that emits air pollutants as well as background levels in order to adequately assess health impacts (US EPA, 2009; BAAMD, 2008). Thus, from a public health perspective, all sources of emissions should be estimated and included in the air dispersion analysis.

It is particularly important to consider aggregate exposures to certain air pollutants, such as fine particulate matter ($PM_{2.5}$), because there has been no level found in epidemiological studies at which exposure to $PM_{2.5}$, is considered without risk (US EPA, 2005). For example, the various emission points for a counter-flow drum mix asphalt plant are illustrated in Figure 1 (US EPA, 2000). Note that the emission points that are not included in the modeling analysis are highlighted in yellow. US EPA estimates that the non-stack emissions at a typical drum mix HMA facility represents about 15% of the total uncontrolled criteria pollutant emissions and about 15-20% of the total hazardous air pollutants (See Table 1, US EPA, 2000).

We also believe that diesel truck emissions associated with the operations of the proposed facility need to be considered in the analysis because they contribute to the existing air pollution burden associated with traffic near the proposed site. Diesel exhaust can exacerbate asthma, cause respiratory irritation, and is considered a likely human carcinogen (US EPA, 2002). The concern about health impacts associated with living near roadways is based on highway proximity studies that have been conducted over the past 10 years to isolate the health risks of living near major roadways from other typical risk factors. Living near high-traffic roadways exposes people to black carbon, fine/ultrafine particles, and gaseous emissions although concentrations of vehicular emission drop off by an order of magnitude within 100-300 meters of roadways (Levy, 2006). A substantial body of evidence from epidemiological studies has found

[1] Susan Ruck and Jim Belsky

strong positive and statistically significant associations between exposure to traffic-related pollutants and adverse health outcomes in both children and adults, particularly individuals with preexisting respiratory and cardiovascular diseases (Nordling et al., 2008, Morgenstern et al., 2008, Russell et al., 2009). These include: increases in respiratory symptoms, allergies and risk of asthma in children and significantly elevated risks for cardiovascular death and morbidity for people living closer vs. farther away including risk of heart attack, reduced survival of heart failure, and increased incidence of coronary heart disease.

In addition, we have identified a school within a mile from the proposed site that has statistically significantly elevated levels of pediatric asthma compared to the statewide level. The existing health burden is of concern because studies have shown that air pollution exposure can worsen asthma (McConnell et al., 2006; US EPA, 2005). Other factors that need to be considered include the increased level of exposure per kilogram body weight from higher respiratory rate in children playing outdoors. The determination of health impacts associated with the emissions from the proposed facility should include air dispersion modeling that considers total emissions associated with facility (stationary, mobile, and fugitive emissions) plus the existing burden of air pollutant exposure – not just the "incremental increase" related to a proposed new source. In other words, it is important to determine the cumulative exposure to this population.

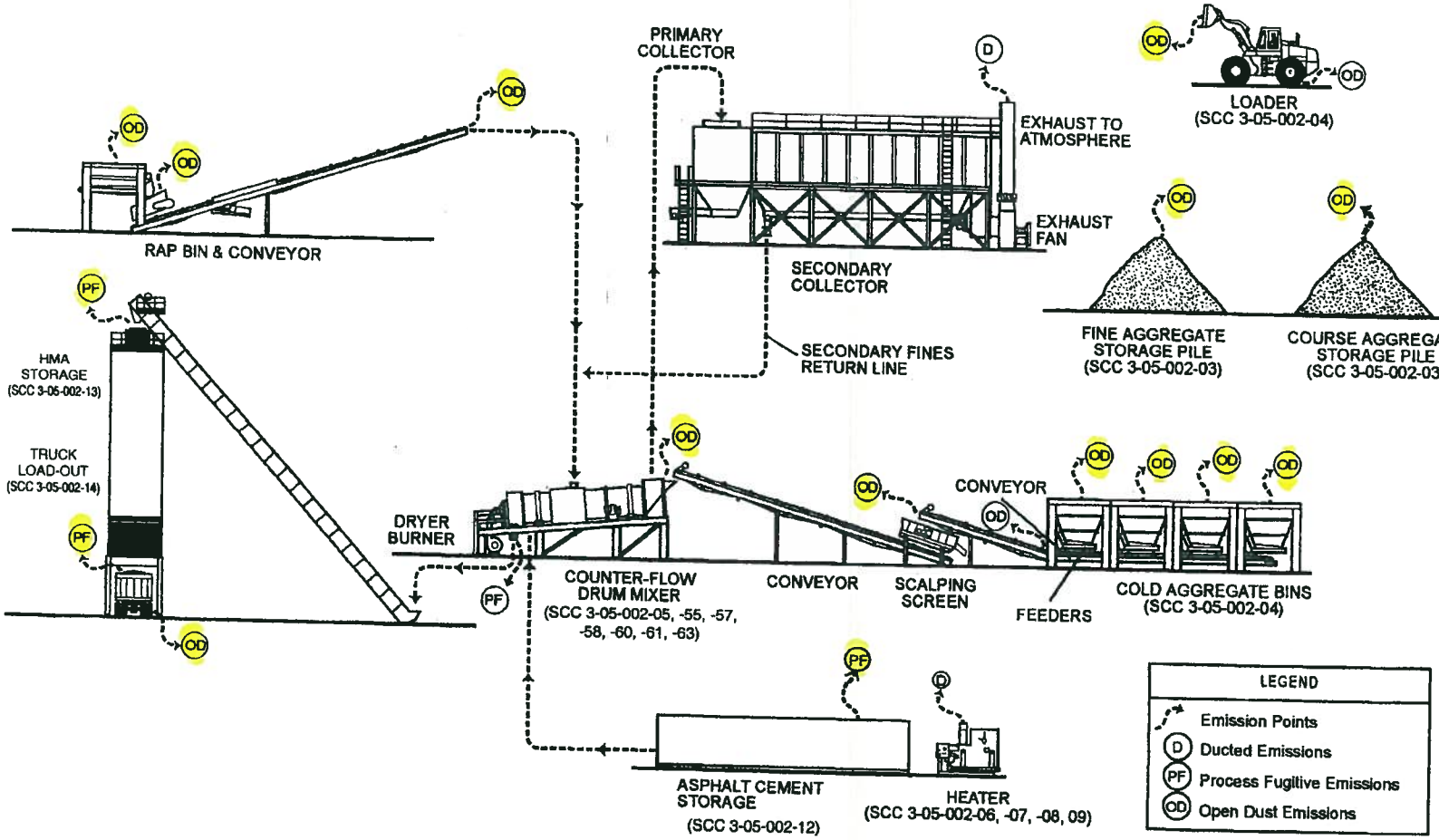
In summary, since the contribution of new sources have not been completely evaluated – for example, on-site fugitive emissions and diesel truck emission both on and off-site – we believe that more information is needed in the air quality analysis to ensure that short and long-term impacts from facility operations do not present public health concerns.

Sincerely,

Suzanne K. Condon, Associate Commissioner
Director, Bureau of Environmental Health

cc: Martha Steele, Deputy Director, Bureau of Environmental Health
Margaret M. Round, Senior Environmental Analyst, BEH/Environmental Toxicology Program

Figure 1



General process flow diagram for counter-flow drum mix asphalt plants (source classification codes in parentheses).

Table 1

ESTIMATED ANNUAL EMISSIONS FOR A TYPICAL DRUM MIX HMA FACILITY[a]

Pollutant	Annual emissions by source, pounds per year									
	Mobile sources (diesel exhaust)	Material handling and road dust	No. 2 fuel oil-fired dryer[b]	Natural gas-fired dryer[c]	Load-out[d]	Silo filling[e]	Asphalt storage[f]	Yard[g]	Total[h] (oil-fired)	Total[h] (gas-fired)
Criteria air pollutants										
Particulate matter less than 10 micrometers (PM-10)	220	26,000	4,600	4,600	104	117			31,000	31,000
Volatile organic compounds (VOC)	190		6,400	6,400	782	2,440	64	220	10,000	10,000
Carbon monoxide (CO)	1,200		26,000	26,000	270	236	6	72	28,000	28,000
Sulfur dioxide (SO_2)	26		2,200	680					2,200	710
Nitrogen oxides (NO_x)	560		11,000	5,200					12,000	5,800
Hazardous air pollutants (HAPs)										
Polycyclic aromatic hydrocarbons (PAHs)	0.13		176	37	4.0	5.8	0.12		190	50
Phenol					0.80				0.80	0.80
Volatile HAPs	6.6		1,560	1,020	12.4	31	140	3.3	1,800	1,200
Metal HAPs			19	16					19	16
Total HAPs[h]	6.7		1,800	1,100	17	37	140	3.3	2,000	1,300

[a] Based on an annual HMA production rate of 200,000 tons per year.
[b] Between 10 and 30 percent of the HMA is produced using fuel oil.
[c] Between 70 and 90 percent of the HMA is produced using natural gas.
[d] Loading of HMA into haul trucks
[e] Filling of temporary storage silo prior to load-out.
[f] Includes emissions from oil-fired hot oil heaters.
[g] Fugitive emissions from loaded trucks prior to departure to the job site.
[h] Total expressed using two significant figures.

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